The Gender Earnings Gap in Australia: Learning from State Comparisons

by

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Abstract

Over the 1990s there have been a number of significant transformations in the Australian labour market, many of them likely to affect female relative earnings. This paper examines the impact of changes in the regulatory industrial relations systems on gender earnings inequality. The paper begins with an overview of the regulatory development in the various State and Federal jurisdictions. This analysis is followed with a short discussion of why decentralised wage fixing may fail women. The remainder of the paper offers new empirical insight into Australian gender earnings differentials via a disaggregated State analysis.

Introduction

It is an established fact that female pay "... is influenced more by the overall system of pay determination than by the specific policies for gender equality" (Rubery, 1992: 619). The more centralised the system, the more equitable the outcomes (Blau and Kahn, 1992; Whitehouse, 1992; Gregory and Daly, 1990). The latter arises as a result of policies which compress the wage structure and raise the bottom of the wage distribution, thus indirectly benefiting women (given their preponderance in low wage jobs). It may also be attributed to enforcement mechanisms provided by unions and inspectorates under the institutional framework of centralised wage fixing (Bennett, 1994).

Throughout most of this century Australian wage fixing has been highly centralised. The establishment of wages and wage relativities has, primarily, been the domain of industrial tribunals and females have, at significant moments, benefited from the arrangements. The significant narrowing of the gender pay gap following the landmark 1969 and 1972 equal pay cases has, for example, been attributed to the

prevailing system of compulsory arbitration (Gregory and Duncan, 1981; and Kidd and Meng, 1997).

Since the late 1980s/early 1990s, there has been a gradual move away from arbitration as provisions for decentralised bargaining have become available. Such transformations have occurred in various State and Federal jurisdictions, although the timing and precise nature of the reforms implemented have varied. Jurisdictions implementing radical reforms are typically those where conservatives hold the balance of power (e.g. Victoria in 1992, Western Australia in 1993, and Federally in 1996).

Given the demonstrated importance of centralised wage fixing for female pay and the increasing retreat from arbitration it becomes pertinent to ask "what has happened to female relative pay?" Put differently, "What has been the impact of changes in the regulatory systems on the gender earnings gap?" This paper addresses these questions through an analysis of ABS time-series and cross-sectional data. It begins, first, with an overview of the regulatory developments in each of the industrial jurisdictions. This analysis is followed with a short discussion of why decentralised wage fixing may fail women. The remainder of the paper offers new empirical insight into Australian gender earnings differentials via a disaggregated State analysis.

Regulatory Developments

Since the late 1980s compulsory arbitration in Australia has been in retreat (Deery, Plowman and Walsh, 1998). During the initial retreat phase (1987 to 1991) the devolvement of bargaining arrangements to the enterprise and workplace level was via a series of 'managed' steps (McDonald and Rimmer, 1989). In the Federal jurisdiction (and in State jurisdictions following general orders to flow Federal decisions through) key wage fixing principles guiding the process included the Restructuring and Efficiency Principle (REP), the Structural Efficiency Principle (SEP), the Enterprise Bargaining Principle (EBP). Under the REP a two-tier wages system was introduced, with the first tier allowing for a national wage adjustment and the second based on productivity trade-offs. The SEP retained a two-tier wages system

but extended the negotiation guidelines to encourage workplace reform (commonly referred to as award restructuring). As part of this process the Australian Industrial Relations Commission (AIRC) instigated a Minimum Rates Adjustment (MRA) process designed to establish a rational structure of award wage relativities as a necessary "...prerequisite to a more flexible system of wage fixation" (1991/10 CAR 722, p.723). The MRA process commenced in August 1989 and was scheduled for completion by August 1991 (Print J9042). In reality several reviews continued beyond that date.

In October 1991, following mounting pressure to further decentralised the system, the AIRC 'begrudgingly' introduced the Enterprise Bargaining Principle (EBP) (Dabscheck (1997). Although designed to further devolve wage negotiations, the strict requirements of the EBP limited the attractiveness of enterprise bargaining. In 1992, to facilitate and further promote enterprise bargaining the Commonwealth Government amended the *Industrial Relations Act 1988* and introduced a new division (Division 3A) on certified agreements. More significant amendments were subsequently made to the Act via the *Industrial Relations Reform Act 1993* (and subsequent legislation, discussed below).

Around the same time various State governments also enacted legislative reforms designed to encourage more decentralised bargaining. Reflecting differing political landscapes, early State reforms tended to be more radical than those pursued Federally. In Victoria, for example, non-union bargaining was encouraged under the *Employee Relations (ER) Act 1992*. The ER Act also abolished State awards and replaced them with a set of 'minimum conditions', thus allowing employers significant scope in formulating their own employment arrangements (Erwin, Iverson and Buttigieg, 1994: 457). The effect of the Act was to encourage many unions (and thus employees) to shift to the Federal jurisdiction in search of better protection. In December 1996 the Victorian government completed this move to the Federal jurisdiction when it ceded its industrial relation powers to the Commonwealth via the *Commonwealth Powers (Industrial Relations) Act 1996.* The Federal government amended the *Workplace Relations Act 1996* to effect the Victorian transfer (for more details see Kollmorgen, 1997).

In Western Australia, prior to 1993, the main Act governing industrial relations regulation was the *Industrial Relations Act 1979 (WA)*. In December 1993 three Acts were introduced in the State to effect radical industrial relations reform. They included the *Industrial Relations Amendment Act 1993 (WA),* the *Minimum Conditions of Employment Act 1993 (WA)* and the *Workplace Agreements Act 1993 (WA) ('WAA').* Of the three pieces of new legislation introduced the WAA was (and is) the most significant. Under this Act employers may 'opt-out' of conciliation and arbitration and enter into individual agreements (i.e. as between an employer and an employee directly). Agreements under this stream are approved by the WA Commissioner of Workplace Agreements (whereas industrial agreements (i.e. collective unionised agreements) continue to be ratified by the WA Industrial Relations Commission). The no disadvantage test against which individual agreements are assessed is the Minimum Conditions of Employment Act.[1] Since 1993 there have been two further 'waves' of legislative amendments. Each have met with weeks of industrial unrest and each has focussed on the curtailment of union activity. (For more details on the WA arrangements see Ford (1996) and on second and third wave reforms see Bailey and McAtee (1999) and Bailey and Horstman (1999)).

The WA Act may be seen as a fore-runner for subsequent industrial relations reform introduced to the Federal jurisdiction in November 1996 (i.e. the *Workplace Relations Act 1996*). As with the WA system, this Federal Act allows for collective and individual agreements. The provisions for individual bargaining are contained in Part VID of the Act - Australian Workplace Agreements (AWAs). AWAs reached under the Act are approved by an Employee Advocate which is separate from the AIRC. As with the individual agreements in WA (and elsewhere), AWAs are private documents. The benchmark against which the no-disadvantage test is conducted is the relevant award. However, as awards are stripped back, the effectiveness of awards as a protective provision is brought into question.

In the Federal jurisdiction the regulation of industrial relations is limited via the constitution (see Gardner and Palmer (1997) or Deery, Plowman and Walsh (1998) for a discussion of the constitutional constraints). In seeking to extend the influence of

the Federal jurisdiction the Federal Government has thus sought 'harmonisation'. That is, the Federal government has requested that State governments hand over industrial relations powers. Thus far only two States have fully harmonised their arrangements. They include Victoria (as noted above) and Queensland (via the *Workplace Relations Act 1997 (QLD)*). As with the Federal Act the Queensland Act restricts the jurisdiction of the Queensland Industrial Relations Commission (QIRC) to allowable matters and allows for parties (employers and employees) to opt-out of the system. Individual agreements negotiated in this jurisdiction are filed with an Employment Advocate and approved by an Enterprise Commissioner. Prior to 'harmonising' their arrangements Queensland introduced an amendment Act in 1994 which, at that time, was designed to bring the system into alignment with the changes in the Federal Industrial Relations Reform Act 1993. (For more on the Queensland legislation see Coulthard, 1998).

Other States which similarly provide for non-union agreements are South Australia and Tasmania. In South Australia the provisions are contained in the *Industrial Relations and Employee Relations Act 1994* and agreements are approved by the Enterprise Bargaining Division of the Commission (Alexander and Lewer, 1998: 246).

In Tasmania the relevant legislation includes the *Industrial Relations Act 1984 (Tas), the Industrial Relations Amendment (Enterprise Bargaining and Workplace Freedom) Act 1992* and the *Industrial Relations Amendment Act 1997*. The reforms introduced since 1993 provide for non-union agreements. Other changes include the abolition of preference and closed shop practices and restricted rights of entry for union officials (Otlowski, 1994). Agreements made in the Tasmanian jurisdiction are registered with the Enterprise Commissioner. The Commissioner is not required to conduct a no-disadvantage test. Agreements must, however, comply with certain statutory requirements, including legislated minimum wage rates (although it has been suggested that the minimum's are unrealistically low) (see Otlowski for further details).

The only State not to provide for non-union bargaining is New South Wales reflecting the government's "... philosophical commitment to the centrality of the award system"

(Buchanan, Woodman, O'Keeffe and Arsovska, 1998: 106). In a similar vein New South Wales is the only system which does not restrict agreements to the enterprise or workplace level (Gardner and Palmer, 1997). That is, agreements may be multi-employer and parties to agreements may be peak union or employer bodies (ibid., p.205). In New South Wales the arbitration tribunals and unions continue to play an important role in the shaping of wage outcomes.

Decentralised Bargaining and Pay Equity

In the introduction to this paper it was noted that the system of pay determination is a crucial determinant of female outcomes. International evidence shows that gender wage inequality is a world-wide phenomenon, although the gaps tend to be smaller in centralised systems (Blau and Kahn, 1992 and 1996). Drawing on a study of equal pay in Germany, Italy and the UK undertaken for the Equal Opportunities Unit of the European Commission Rubbery finds that ".. women's pay position is influenced more by the overall system of pay determination than by the specific policies for gender equality ..." (1992: 619). Whitehouse (1992), following an analysis of 13 OECD countries, similarly concluded that centralised wage fixing arrangements were associated with high relative female earnings.

Why might decentralised bargaining fail women? The general argument is that relative to men women are in a weaker bargaining position because: (a) they are more concentrated in lower status jobs and occupations; (b) are more concentrated in part-time and casual employment; (c) have lower levels of union membership and (d) are more likely to avoid aggressive behaviour associated with negotiating better terms and conditions (Wooden, 1997).

A number of Australian based empirical studies lend credence to some of these arguments. Wooden (1999) and Pocock and Alexander (this volume), for example, show that occupational and industry segregation imposes a significant penalty on the earnings of both males and females in highly feminised jobs. Across industries, females employed in highly feminised occupations earn around six per cent less than their female counterparts in highly male dominated industries (Wooden, 1999: 165).

(These results hold after controlling for differences in the skills and other productivity characteristics of the sample). Amongst males the equivalent penalty is greater, equal to around 18 per cent. That is, males employed in a highly feminised job (e.g. nursing) will earn around 18 per cent less than other men with identical characteristics who are employed in male dominated jobs.

Focussing on the issue of part-time employment (much of which is undertaken on a casual basis) available research shows that: (a) part-time workers are less likely to be found at workplaces covered by enterprise agreements; and (b), within workplaces part-timers are sometimes excluded from agreements (Short, Romeyn and Callus, 1994)[2]. The resultant effect of such exclusionary practices is a gap between the earnings of part-timers and full-timers. This also shows up in the earnings gap of around six per cent between casual and permanent employees, even in th epresence of an award based casual loading entitlement (Wooden, 1999:165).

Gender differences also emerge in studies examining the outcomes of enterprise bargaining. Reiman (1998), for example, examined the male-female pay gap of workers covered by an enterprise agreement and those not covered. He found that the gender pay gap was greater in the bargaining group than in the non-bargaining (award dependent) group. Consistent with other international studies (e.g. Blau and Kahn, 1996), Reiman's study suggests that decentralised bargaining introduces greater wage inequality and thus a larger gender wage gap.

The remainder of this paper explores the link between decentralised bargaining and gender wage inequality. Specifically the following hypothesis is tested: the more deregulated the labour market, the greater the gender wage gap.

The State of Pay: ABS Time-Series Data

In this section we present data on the average weekly ordinary time earnings (AWOTE) for full-time adults (seasonally adjusted). The data are drawn from Australian Bureau of Statistics (ABS) *Average Weekly Earnings, States and Australia*

(Cat. No. 6302). There are, however, limitations associated with these data. The series, for example, is unable to separately identify earnings growth by agreement coverage (e.g. award, collective or individual).[3] Similarly, it is impossible to differentiate the jurisdictional coverage. Workers within a State may be covered by either the relevant State jurisdiction or the Federal jurisdiction (where industrial powers have not been ceded to the Federal level). There is, however, a gender effect with respect to State and Federal coverage. Historically sectors such as health and education (female dominated areas) were denied Federal coverage on the grounds that they were not industries. State awards thus tend to dominate such industries. Table 1 below shows the inter-industry distribution of males and females in 1996 along with figures on State Award coverage for a similar time period. From these data it is apparent that females are more likely than males to come under the coverage of a State jurisdiction. For example, in 1996 16.4 per cent of all female employees were in the Health industry; 81 per cent of workplaces in this industry were covered by State Awards.

Table 1: Inter-Industry Distribution of Employment and Award Coverage Data, 1995/96

	Inter-industry Distribution of Employment[(a)] (%)		% of Workplaces in Industry Covered by State Award[(b)]
Industry	Female	Male	
Agriculture, forestry, and fishing	3.5	6.1	-
Mining	0.4	1.6	(55)
Manufacturing	8.4	17.3	27
Electricity, gas and water	0.3	1.2	51
Construction	2.2	11.1	38
Wholesale trade	4.3	7.2	53
Retail trade	17.5	12.9	58
Accommodation, cafes and restaurants	5.9	3.5	47
Transport and storage	2.5	6.5	43
Communication services	1.5	2.3	0
Finance and insurance	4.9	2.9	20
Property and business services	10.2	9.5	65
Government administration and defence	4.4	4.5	56
Education	10.9	4.3	86
Health and community services	16.4	3.8	81
Cultural and recreational services	2.6	2.0	(51)
Personal and other services	4.2	3.3	86
TOTAL	100.0	100.0	

Notes:

(a) the industry employment data are for the period August 1996 and are from *ABS Labour Force Australia*, (Cat. 6203).

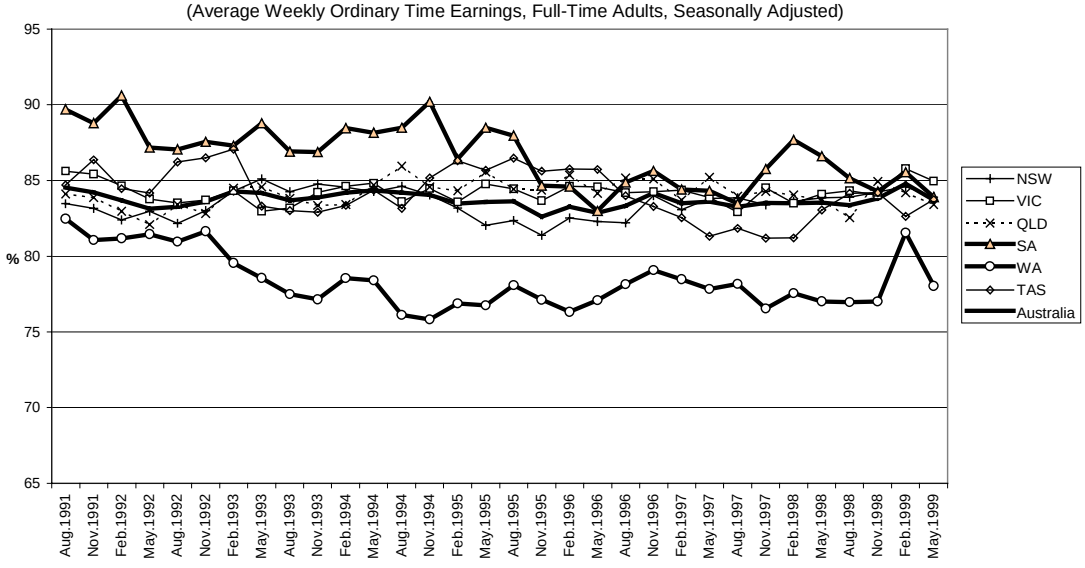
(b) the Award coverage data are from Morehead *et al* (1997), Table A10.3, p.520. They pertain to workplaces with 20 or more employees.

Whilst these difficulties with the AWOTE data make it difficult to directly test the hypotheses that women fare better in more regulated labour markets, it should be noted that there is no data set able to overcome these difficulties.

Within State Gender Pay Gaps

Figure 1 below plots within State gender pay gaps over the period August 1991 to May 1999.[4] The data show that in May 1999 the Australian female/male earnings ratio was equal to 83.7 per cent, translating to an earnings gap of 16.3 percentage points. In Western Australia the gap was significantly higher (equal to 22 percentage points). Elsewhere there was no significant difference in the gender-wage gap across the States.

Figure 1
Female/Male Wage Realtivities, By State, 1991 to 1999
(Average Weekly Ordinary Time Earnings, Full-Time Adults, Seasonally Adjusted)



Source: ABS 6302

Over the period August 1991 to May 1999 there was no significant change in the gender wage gap nationally and within the States of New South Wales, Victoria, Queensland and Tasmania. However, within Western Australia and South Australia female relative earnings declined significantly. In Western Australia the gap widened by 4.4 percentage points. In South Australia the equivalent change was 5.8 percentage

points, moving from a starting base of 10.3 percentage points. (In both cases the change was significant at the five per cent level or better).

In terms of timing, it is interesting to note that in Western Australia much of the change occurred prior to the introduction of the *Workplace Agreements Act* (WAA). The fastest growth occurred over the period November 1992 to November 1993, during which time the gap widened by 4.5 percentage points (from 18.4 percentage points to 22.9 percentage points). The WAA did not, however, halt the decline. Indeed, between November 1993 and November 1994 the gap increased by a further 1.3 percentage points to 24.2 percentage points. Since November 1993 there has been no significant change in the WA gender wage gap.

In South Australia the biggest decline occurred between November 1994 and May 1996. During this period the SA gender wage gap grew by 7.2 percentage points (from 9.8 to 17.0 percentage points). In the period since May 1996 there has been no significant change in the SA gender wage gap.

On the basis of these data it is difficult to accept the hypothesis that labour market deregulation causes a deterioration in female/male relative pay. In Western Australia the gap has grown, although much of it occurred prior to the implementation of radical industrial reforms. In South Australia the deterioration in the gap there similarly occurred during a period of moderate deregulation. Elsewhere, even where radical reforms have been introduced (e.g. Victoria) the gap has remained unchanged.

As indicated above, the weak empirical support for the hypothesis may reflect, in part, the difficulties of differentiating jurisdictional effects in the data. In Victoria, for example, the Federal jurisdiction has historically had greater coverage than in States such as Western Australia (Deery and Plowman, 1985: 128). Thus, the insignificant effects in Victoria over the early 1990s may reflect the more moderate Federal system effects.

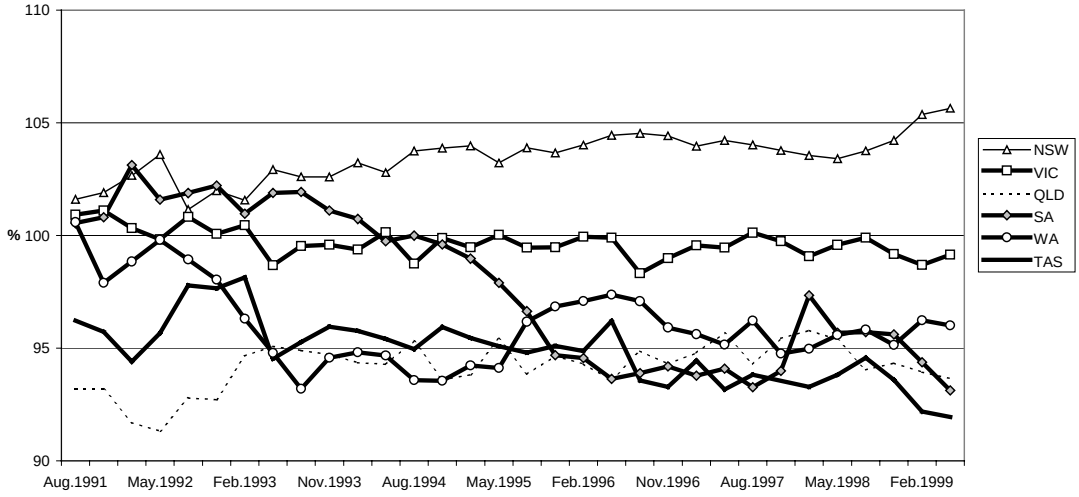
Alternatively, it may be that the determinants of male and female earnings are similar in which case males and females have both been adversely affected by industrial

reforms in the various States. To examine this latter proposition in more detail we plot female average earnings in each State relative to female National average earnings (Figure 2). Similarly, we also plot male average earnings in each State relative to male National average earnings (Figure 3). As with Figure 1 the results reveal some interesting patterns.

State Female Average Earnings Relative to National Female Average Earnings

Against the National average, Figure 2 shows that the only State showing a significant *increase* in female relative earnings over the 1990s was New South Wales. In Queensland the relativity remained unchanged and in all other States (Victoria, South Australia, Western Australia and Tasmania) the *decline* was statistically significant.

Figure 2
State Female/Australian Female Pay Gaps 1991 to 1999
(Full-Time Adults, Average Weekly Ordinary Time Earnigns, seasonally adjusted)

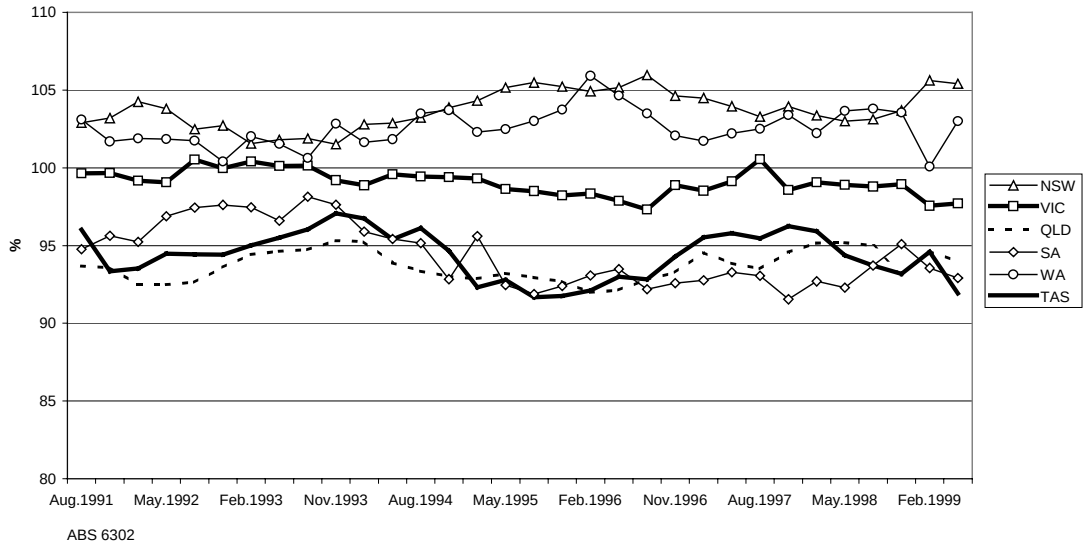


Source: ABS Average Weekly Earnings, Cat. 6302.

State Male Average Earnings Relative to National Male Average Earnings

Figure 3, which plots male relative earnings, shows that against the National average, males in New South Wales have made significant gains. In Queensland, South Australia and Western Australia there has been no significant change in male relative earnings. In Victoria and Tasmania male relative earnings have, over the 1990s, fallen significantly relative to the National average. In Victoria the gap grew by 1.9 percentage points (t=2.325) and in Tasmania it grew by 4.1 percentage points (t=2.642).

Figure 3
State Male/Australian Male Pay Gaps, 1991 to 1999
(Full-Time Adults, Average Weekly Ordinary Time Earnings, seasonally adjusted)



What interpretations may we place on these results? Bearing in mind the caveats already noted (such as the potential for Federal arrangements to be impacting on State outcomes), it should also be pointed out that the above analysis does not control for the differential economic climates in the various States. That being said, it is clear that workers (males and females) in New South Wales have made significant gains over the 1990s. Furthermore, it is notable that New South Wales is the only jurisdiction where non-union bargaining (collective and individual) is not provided for.

In Victoria and Tasmania, where radical industrial reforms have been introduced, both males and females have, over the 1990s, experienced a significant decline in their earnings relative to national averages. Because both sexes have experienced slower earnings growth relative to the national average the gender gap within each State has remained unchanged.

In Western Australia and South Australia, when compared to National rates, male relative earnings have remained unchanged over the period 1991 to 1999, while female relative earnings have declined. The net effect of these divergent trends has been a widening gender wage gap within these States.

In concluding this section it would seem that there is some support for the argument that labour market deregulation results in a deterioration in female relative pay outcomes. When compared against female outcomes in more regulated jurisdictions (e.g. New South Wales) female outcomes in deregulated States such as Victoria, Tasmania and Western Australia are significantly lower. In the following section we use cross-sectional data to further explore the determinants and size of State based gender wage gaps.

The State of Pay: ABS cross-sectional Data (1996)

Any attempt to explain relative earnings differentials between males and females needs, firstly, to be able to explain as fully as possible, factors important in why individual workers earn more or less than some average amount. In the economics literature the predominant framework for doing this is human capital theory. The basic idea here is that individuals who invest in improving their job skills through, for example, undertaking a certificate or degree course, or undertaking some formal off-the-job training, should earn a higher income than an individual with much the same characteristics, but who has <u>not</u> undertaken such education or training. Similarly, other things equal, an individual with more relevant work experience should earn more. This can be captured in a relationship of the kind:

earnings = f(highest education attainment, training, experience)

This model says that earnings are expected to be higher the higher is the measured education, training level and experience level of an individual.

Using regression analysis this model may be fitted to data on earnings, education, work experience and other characteristics known to affect earning outcomes (e.g. industry and occupation of employment as well as demographic characteristics such as marital status, presence of dependant children and birthplace).

The results will show, on average, how much extra an individual can expect to earn by undertaking, for example, a degree qualification. Comparisons are made to similar individuals who have not undertaken such training (e.g. individuals who did not complete high school). Using these quantitative techniques we are also able to empirically estimate whether, for example, males are receiving a higher return on their investments in education than females. Similarly, we can study whether or not employers reward levels of work experience at a higher level for males than females.

Following a procedure proposed by Blinder (1973) and Oaxaca (1973) regression results may also be used to decompose the gender pay gap into two components: an *explained* component and an *unexplained* component.[5] The former arises because males and females are in possession of different 'productivity' characteristics (e.g. skill level, experience level, education level, and industry of employment). The latter measures the extent to which equivalent productivity characteristics are differently rewarded depending on whether or not the person is a male or female. It measures the extent to which women's skills are undervalued (i.e. it measures discrimination).[6]

Most Australian studies utilising the Blinder/Oaxaca decomposition procedure find that less than a quarter of the male-female pay gap arises because of explained factors. The corollary of this is that around three quarters of the gap occurs as a result of pay discrimination (see Chapman and Mulvey, 1986; Kidd and Shannon, 1996; Preston, 1997). After deducting the explained portion from the total wage gap, researchers

find an unexplained (discriminatory) wage gap of between 8 per cent (Reiman, 1998) and 14.5 per cent (Preston, 1997).[7]

Data

In this paper the 1996 Australian Census data is used to estimate separate male and female wage equations at the State level; these are then used to decompose the gender wage gaps. The data are drawn from the one per cent public use 1996 Census Household Sample File. In keeping with most studies in this field our sample is restricted to full-time wage and salary earners aged between 16 and 64 years old. Appendix A provides details on the data and variables used. There are 26,370 males and 14,059 females in the sample.

Results

Separate male and female wage equations were estimated using ordinary least squares (OLS). (The dependent variable in all cases is the natural logarithm of weekly earnings). White's (1980) technique was used to correct for heteroskedasticity. The male and female regression results are reported in Appendix B. Table 2 below summarises the decomposition results.

Table 2:
Decomposing Australian Gender Wage Gaps: National and State Based Estimates, 1996

	Australia	NSW	VIC	QLD	SA	WA	TAS
Explained Gap	0.051	0.050	0.041	0.063	0.013	0.085	0.006
Human capital	0.013	0.011	0.012	0.018	0.004	0.022	0.018
Demographics	0.009	0.010	0.011	0.010	0.008	0.010	0.009
Overtime	0.033	0.034	0.028	0.030	0.031	0.038	0.026
Public	-0.006	-0.006	-0.005	-0.003	-0.011	-0.006	-0.008
Metro	-0.003	-0.002	-0.006	-0.001	-0.001	0.001	-
Industry	0.023	0.024	0.008	0.030	0.012	0.042	0.015
Occupation	-0.019	-0.020	-0.009	-0.022	-0.029	-0.020	-0.055
Unexplained Gap	0.141	0.133	0.135	0.151	0.159	0.176	0.171
TOTAL GAP	0.192	0.183	0.176	0.214	0.172	0.261	0.178

Note: The regression model controlled for one digit industry and occupation.

The last row of Table 2 details the total gender wage gaps in each State. National results are also provided for comparison purposes. The gaps vary considerably in size,

from 17.2 percentage points in South Australia to 26.1 percentage points in Western Australia. These gaps may be termed 'raw' wage gaps. They measure the gender wage gap before any attempt has been made to control for factors which may account for their presence (e.g. industry and occupational distribution, differences in education and experience levels across the sexes).

The first row of Table 3 measures the 'explained' gender wage gaps. It is apparent from this that a large component of the WA gap (8.5 percentage points) can be explained by differences in the productivity characteristics of males and females in the WA sample. In Queensland a large component (6.3 percentage points) of the gender wage gap in that State may similarly be accounted for by differences in the characteristics of males and females. In both these States the main factors contributing to this explained portion were differences in the industry structure of employment (with more males employed in higher paying industries), differences in overtime work (more males working overtime) and differences in human capital (males more qualified and experienced than females). Indeed, the industry results show that throughout Australia differences in the industrial composition of female and male employment partly explains the gender wage gap. Nationally, just under half ((0.023/0.051)*100 = 45%) of the explained component arises from industry employment differences. Around two thirds of the explained component arises from sex based differences in overtime work (with males more likely to work overtime). Interestingly, one factor helping to reduce the gap is the occupational composition of the workforce. Consistent with many other Australian studies (e.g. Kidd and Viney, 1991; Preston 1997) the occupational results in Table 2 show that if females had the same occupational distribution as males they would be paid *less*, not more.[8]

After we deduct the explained gaps from the total (raw) wage gaps we are left with the residual or unexplained gap. As indicated earlier, this gap provides a measure of the extent to which males and females are rewarded differently for the equivalent characteristic. That is, it measures pay discrimination. Nationally, the gender wage gap is 14.1 percentage points after we take into account differences in human capital, demographics, sector, industry and occupation of employment. The gender wage gap

(as measured by this indicator) is lowest in New South Wales (13.3 percentage points) and highest in Western Australia (17.6 percentage points).

In returning to the hypothesis - the more deregulated the labour market, the greater the gender wage gap - the results show that against NSW (the most 'centralised' State) there is no significant differences in the gender wage gaps of Victoria, Queensland and South Australia. There is, however, a statistically significant difference in the gaps in Western Australia and Tasmania. Taking into account the timing of the industrial reforms, the results thus lend some support to the hypothesis.

New South Wales, as has been noted, is the most regulated of the States. Victoria has pursued a radical reform agenda, but as compared to most other States, a greater proportion of workers in Victoria come under the Federal jurisdiction. Prior to the 25th November 1996, the Federal jurisdiction was fairly regulated. Individual agreements, for example, were not permitted. Over the 1990s Queensland and South Australia have also closely followed the Federal jurisdiction. Thus, in 1996 these two States were also fairly regulated. Western Australia and Tasmania have, on the other hand, provided for individual bargaining since around 1993. It is thus noteworthy that, in 1996, the only States to have a significantly higher gender wage gap are Western Australia and Tasmania.

Summary and Conclusion

Since 1991 Australian institutional arrangements for pay determination at both State and Federal levels have undergone a number of transformations. In a series of legislative amendments, governments of all persuasions have sought to decentralise wage bargaining. However, while it is common to describe the processes in the various jurisdictions as 'enterprise bargaining', this label masks important differences in the institutional arrangements across Australia (Bennett, 1994). At one end of the spectrum there are the regulatory systems based on individualism (e.g. Western Australia). At the other end there are the collective systems (e.g. New South Wales). Arrangements in the Federal jurisdiction have largely been collectivist; however, since

l996, third party involvement has increasingly been circumscribed and more deregulatory proposals are currently under consideration.

It was widely feared that women would lose out in the move towards a more decentralised system. Thus far the ABS time-series data shows that there has been no significant change in their relative earnings position at the natinal level. However, the analysis in this paper shows that at a disaggregated level there have been some divergent trends. In Western Australia, for example, over the 1990s the gender wage gap has grown by 4.4 percentage points. Currently (May 1999) the unadjusted gender wage gap in that State is equal to 22 percentage points.

In this paper a disaggregated state analysis was used to examine the hypothesis that the more deregulated the labour market the greater the gender wage gap. Due to data constraints the analysis concentrated on males and females employed full-time. Part-timers (many of whom are causal) are likely to be particularly disadvantaged by labour market deregulation, thus the results shown here are only the 'tip-of-the-iceberg', so to speak. Further, the analysis is slightly constrained by the fact that no data series is able to separately identify State and Federal jurisdictional effects.

These caveats aside, the findings, in particular the cross sectional analysis using 1996 data, provide some support for the hypothesis that labour market deregulation contributes to a growth in the gender wage gap. Two States pursuing individual bargaining prior to 1996 (Western Australia and Tasmania) have a wage gap which is significantly higher than that of New South Wales (the collectivist system). The results thus suggest that as more jurisdictions pursue regulatory systems based on individualism we are likely to see continued erosion of the relative pay position of women in Australia.

Appendix A: Definition of Variables in the Regression Model.

Variable	**Description**
(unqualified)	did not complete high school (forms the omitted category)
hschool	Highest qualification (HQ) = high school
cert	HQ = certificate
diploma	HQ = diploma
degree	HQ = degree
exp	years of potential labour market experience
otime	=1 if works overtime
(born OZ)	born Australia (forms the omitted category)
esb	migrant, born in English speaking country
nesb	migrant, born in Non-english speaking country
(never married)	never married (forms the omitted category)
married	=1 married
wsd	=1 if widowed separated and divorced
child	=1 if has dependant child(ren)
public	=1 if employed in public sector
metro	=1 if lives in metropolitan area.

The models also controlled for one digit industry and occupation.

Appendix B: Regression Results

Table B1: Determinants of Earnings, by State, Females, 1996.

	Australian Females		NSW Females		VIC Females		QLD Females		SA Females		WA Females		Tas Females	
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
constant	5.791	288.264	5.756	157.547	5.819	150.378	5.710	115.859	5.809	84.817	5.766	89.774	5.835	45.920
hschool	0.061	6.221	0.053	3.012	0.045	2.301	0.075	3.397	0.037	1.057	0.068	2.437	0.017	0.313
cert	0.115	9.717	0.129	6.322	0.106	4.360	0.113	4.135	0.040	0.918	0.069	1.935	0.083	1.253
diploma	0.197	12.190	0.196	6.792	0.214	6.984	0.189	5.079	0.142	2.683	0.181	3.365	0.059	0.604
degree	0.322	23.980	0.336	14.090	0.293	10.788	0.345	11.189	0.237	4.715	0.287	7.008	0.316	3.700
exp	0.033	29.015	0.035	17.103	0.035	16.551	0.032	11.365	0.023	6.286	0.043	11.578	0.020	2.541
$exp^2/100$	-0.001	-23.948	-0.001	-13.705	-0.001	-14.504	-0.001	-9.713	0.000	-5.281	-0.001	-9.419	0.000	-2.294
otime	0.102	13.865	0.110	8.607	0.120	8.119	0.087	5.119	0.087	3.358	0.058	2.550	0.114	1.845
esb	0.018	1.666	0.030	1.496	0.030	1.200	0.034	1.346	0.042	1.359	-0.022	-0.983	-0.145	-2.145
nesb	-0.062	-6.480	-0.091	-6.270	-0.052	-2.829	-0.056	-1.723	-0.099	-2.125	-0.059	-1.802	0.189	1.739
married	0.002	0.211	-0.003	-0.211	-0.007	-0.402	0.042	2.338	0.016	0.577	-0.019	-0.734	0.030	0.619
wsd	0.017	1.636	0.033	1.869	0.030	1.376	0.008	0.315	0.012	0.322	-0.044	-1.390	0.129	1.903
child	-0.069	-7.785	-0.062	-4.161	-0.100	-5.443	-0.064	-3.053	-0.047	-1.400	-0.086	-3.143	-0.015	-0.262
public	0.091	10.366	0.084	5.410	0.068	3.551	0.112	5.741	0.149	4.914	0.074	2.723	0.170	3.335
metro	0.088	12.281	0.143	8.742	0.107	6.950	0.067	4.489	0.121	4.250	0.070	2.809	-	-
Adj R^2	0.393		0.405		0.398		0.367		0.350		0.416		0.369	
mean ln*Y*	6.267		6.307		6.274		6.198		6.212		6.234		6.165	
n	14059		4905		3550		2530		973		1320		284	

Note: one digit industry and occupation controls also included in the models.

Table B2: Determinants of Earnings, by State, Males, 1996.

	Australian Males		NSW Males		VIC Males		QLD Males		SA Males		WA Males		Tas Males	
	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t	Coef	t
constant	5.711	194.722	5.689	104.905	5.637	110.562	5.728	76.85	5.766	76.047	5.824	86.208	5.955	57.018
hschool	0.057	6.651	0.049	3.242	0.074	4.154	0.057	3.056	0.063	2.287	0.052	2.079	0.045	0.976
cert	0.145	16.852	0.136	9.009	0.164	8.929	0.126	6.818	0.172	5.996	0.135	5.380	0.158	3.445
diploma	0.207	11.552	0.183	6.008	0.269	7.512	0.192	4.283	0.229	3.314	0.072	1.393	0.274	3.253
degree	0.376	30.911	0.369	17.724	0.398	16.557	0.347	11.192	0.407	8.959	0.318	8.974	0.397	5.853
exp	0.032	32.821	0.031	18.394	0.033	16.787	0.033	14.133	0.033	9.690	0.037	11.866	0.031	5.212
$exp^2/100$	-0.001	-26.67	-0.001	15.036	-0.001	13.714	-0.001	11.970	-0.001	7.667	-0.001	9.691	-0.001	-4.539
otime	0.178	33.678	0.187	20.598	0.157	14.768	0.166	13.593	0.190	10.507	0.178	10.570	0.125	3.819
esb	0.025	2.949	0.045	2.774	0.039	2.079	0.022	1.241	-0.014	0.563	-0.026	1.259	0.171	2.981
nesb	-0.088	-10.964	-0.104	8.167	-0.122	8.245	-0.068	2.593	-0.135	4.063	-0.042	1.467	-0.029	-0.323
married	0.091	11.818	0.100	7.498	0.090	5.581	0.094	5.231	0.073	3.019	0.101	4.077	0.125	2.583
wsd	0.050	4.675	0.004	2.139	0.077	3.412	0.032	1.283	0.007	0.208	0.065	2.087	0.078	1.31
child	0.004	0.549	-0.013	1.109	0.013	1.004	0.002	0.154	0.027	1.147	0.025	1.181	0.017	0.429
public	0.101	11.265	0.097	6.091	0.132	6.446	0.112	5.716	0.121	4.154	0.075	2.649	0.066	1.347
metro	0.070	12.148	0.130	10.445	0.115	9.486	0.026	2.111	0.029	1.329	-0.012	0.595	-	-
Adj R^2	0.418		0.429		0.422		0.412		0.407		0.410		0.420	
mean ln*Y*	6.459		6.490		6.450		6.411		6.384		6.495		6.343	
n	26370		9064		6472		4833		2023		2592		630	

Note: one digit industry and occupation controls also included in the models.

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[1] For employees whose conditions are covered by an award at the time of entering to an agreement the no disadvantage test is the relevant award. This does not apply for new employees.

[2] Statistics from the Australian Bureau of Statistics show that at August 1998 44 per cent of females were employed part-time and of those working part-time more than half (55 per cent) worked on a casual basis.

[3] This point is also made by Heiler, Arsovsak and Hall (this volume).

[4] The selection of August 1991 as a benchmark period was on the basis that August 1991 was the target date for the completion of the MRA process designed to bring about a proper alignment of wage relativities (10 CAR 722: 723).

[5] For readers interested in the technical details the technique requires the estimation of separate male and female wage equations of the form $\ln \hat{Y}_{im} = \hat{\beta}_{0m} + V_{im}\hat{\beta}_m$ and $\ln \hat{Y}_{if} = \hat{\beta}_{0f} + V_{if}\hat{\beta}_f$ where *m* and *f* denotes males and females, respectively. Adopting the male wage structure as the non-discriminatory norm the raw wage gap can be decomposed as follows:

$$\overline{\ln Y_m} - \overline{\ln Y_f} = (\overline{V}_m - \overline{V}_f)\hat{\beta}_m + \overline{V}_f(\hat{\beta}_m - \hat{\beta}_f) + (\hat{\beta}_{0m} - \hat{\beta}_{0f})$$

where $\overline{V}$ is a vector of the means of the independent variables and $\hat{B}$ measures the rate at which the market values a particular characteristic. The first term of the decomposition calculates the portion of the gap attributable to differences in the characteristics of males and females. The second component measures pay discrimination (and data deficiencies).

[6] A portion of this gap will also measure differences in the unobservable characteristics of the sexes (e.g. motivation) which have not been captured in the model. It is difficult to say precisely what proportion of the residual will reflect pay discrimination and what proportion will reflect data deficiencies. However, recent research by Crockett and Preston (1999) shows that in the case of Western Australia, the unexplained gap was primarily the result of the pay discrimination factors.

[7] Other estimates within the range include: 9.2 per cent (Langford, 1995); 10.4 per cent (Rummery, 1992); 12 per cent (Kidd and Shannon, 1996); and 12.7 per cent (Miller, 1994).

[8] To some this result may appear counter-intuitive, since it is often argued that occupational segregation has forced women into a narrow range of low paid jobs, thus contributing to a widening gender earnings gap. The result is, however, not at odds with this logic. It is an arithmetic result which shows that because a greater proportion of the female group as compared to the male group are in occupations which pay above average (male) wages (e.g. Health Professionals, Education Professionals, Business and Administrative Associate Professionals), the average wages of females would fall if they had the same occupational distribution as males. In other words, if the female group were distributed across occupations in the same way as males there would be a fall in the proportion of professional workers (e.g. nurses, teachers etc.) and a rise in the proportion of lower paid workers (e.g. trades, labourers and related workers), thus bringing down female average wages (on the basis of female rates currently paid to these groups) and contributing to a growth in the gender wage gap.